

NOTES

ON

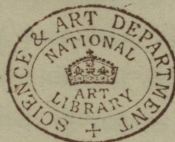
THE ORGANISATION

OF AN

INDUSTRIAL COLLEGE FOR ARTISANS.

BY

T. TWINING, JUN.



For Private Circulation.

26.11.64.

*Chamberlain*

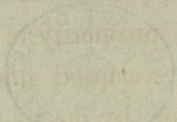
NOTES

INTRODUCTION

THE ORGANIZATION

INDUSTRIAL COLLEGE FOR AMERICANS

The purpose of this organization is to provide a means for the education of American industrial workers. It is a non-profit organization, organized under the laws of the State of New York, and is organized for the purpose of providing a means for the education of American industrial workers. The organization is organized for the purpose of providing a means for the education of American industrial workers. The organization is organized for the purpose of providing a means for the education of American industrial workers.



Ms  
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## INTRODUCTION.

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*Copy of a Letter to the Right Hon. the Earl of Shaftesbury, on Means for Improving the Efficiency of British Artisans.*

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Perryn House, Twickenham,  
August 21st, 1851.

MY LORD,

In pursuance of the suggestion contained in your Lordship's note of the 25th July, I have condensed in the following pages some further information concerning my plan for establishing a National Institution, having for its object to improve the efficiency of British Workmen in their several trades, and more especially in those connected with the manufacturing prosperity of the country.

Many years have elapsed since I first formed the idea of an Institution, by means of which the manual, as well as intellectual education of Artisans, in the more important and difficult branches of trade and manufacture, might receive a finish similar to that which a genteel education receives at the Universities

of Oxford and Cambridge. But it is within these last two years that I have been induced to enter more earnestly into the subject, by the cordial encouragement of a friend thoroughly versed in the applications of science and art to the advancement of industry, and whose valuable assistance I always feel pleasure in gratefully acknowledging. It is through this friendly medium that my attention has been directed to the efforts made in Continental countries to improve the abilities of their respective workmen, and particularly to the successful operations of an institute analogous to the one I had contemplated, by which the Prussian mechanic has been raised, in a short lapse of time, from comparative insignificance to a remarkable degree of efficiency; and it is thus that I have become impressed with the urgency of making counterpart exertions on our side, and with the importance of turning to good account the peculiarly favourable combination of circumstances offered at the present time.

Whilst Christian solicitude and prudent philanthropy were looking out for fresh means of improving the condition of the labouring classes, the Great Exhibition has brought into relief a multitude of facts previously unknown or unnoticed in reference to the true position of the British Working-man; and it has become evident, that not only as a *sine quâ non* of further improvement, but in order even to enable

him to maintain his present standing, it is necessary that we should afford him new facilities for developing his natural intelligence and dexterity ; that we should strengthen his industry with every appliance that the latest improvements in science and art can contribute ; and, in short, that we should neglect nothing that may give him a better chance of coping with his foreign competitors, backed, as they will be, by the increasing efforts of their respective Governments.

It is, then, proposed,

1. That in all large towns throughout the kingdom, and especially in the manufacturing districts, evening schools shall be established, where journeymen may acquire, during their apprenticeship, such branches of practical knowledge as have a direct bearing on their several vocations.
2. That a sufficient degree of connexion shall be maintained between these local Schools and the Central Institute below mentioned, to ensure uniformity of purpose and regularity of working.
3. That a Central Institute or College, on a large scale, shall be founded under Royal Charter, in or near the Metropolis,\* and sufficiently endowed to secure its permanent efficiency.

\* Say at North Woolwich.

4. That journeymen having completed their ordinary apprenticeship, and who can sufficiently prove their abilities in a preliminary examination, shall be admitted to pursue, as inmates of the College, a regular course of appropriate studies, theoretical and practical.
5. That final examinations shall test their attainments, and that degrees and diplomas shall class and stamp their abilities, for their own advantage, if deserving, and for the security of those who might become their employers.
6. That a Museum of Industry, similar to the *Musée d'Industrie*, formed at Brussels, under the able management of M. Jobard, shall be established at, or in connexion with, the Trades' Institute, and steps taken to ensure the annual acquisition of specimens, models, or diagrams, illustrating all the latest improvements and inventions which may offer practical advantages.

The interests and exigencies of our Artisans are at the present time so well appreciated, that there is no doubt that a committee of leading men, formed for the purpose of carrying out such a plan as the above, of which the main features are doubtless rising spontaneously in the minds of many at the present moment, would find a ready source of financial assistance

in the liberality of the public, and especially in the enlightened energy of the manufacturing and commercial community; but it is particularly desirable, as well as natural, that an Institution so closely allied to the purposes of the great trades-gathering of 1851 should be fostered by the same illustrious patronage; that a portion of the peculiarly appropriate materials, so opportunely brought together within the Crystal Palace, should be turned to account for the formation of the Museum of Industry; and also, that the Great Exhibition should bequeath something out of the abundance of its wealth towards the erection and endowment of an Institute which would be so legitimate a monument of its existence and of its benefits.

I am at present engaged in preparing a Tabular Synopsis, classifying in various points of view those trades which might be benefited by the Institute, and also a statement, in a suggestive form, of my views as to numerous details which would have to be considered in case the proposed plan should be deemed available in its general features. I shall proceed with these papers during my stay in Germany, taking advantage of whatever useful information I may be able to collect there, and subsequently in Paris; but I was anxious to leave with your Lordship the present memorandum, which I think of having lithographed for the convenience of communicating my ideas to

others, who also take an interest in the cause which it is my humble endeavour to promote.

I should indeed be happy to find, on my return, that my plan has been developed by concurring minds, and is rising, under the influence of advantages which I do not myself possess, from an ideal to a positive existence.

I have the honour to remain,

My Lord,

Yours very respectfully,

T. TWINING, Jun.



Perryn House, Twickenham,

Dec. 29, 1851.

IN consequence of the favourable manner in which the above letter has been received by many whose opinions I highly value, it now behoves me to redeem the pledge which it contains, by attempting to develop the details of my plan for the technical training of our artisans.

My absence from England during three months, at a time when industrial education was among the favourite topics of the day, has doubtless deprived me of much interesting information; but, on the other hand, I had an opportunity of becoming better acquainted with Continental institutions analogous to the one I had proposed, and for improving my ideas by conversational intercourse with distinguished foreigners taking a lively interest in the development of the working classes.

I procured copies of the ministerial regulations organising that very important and successful establishment the *Gewerbe Institut* of Berlin, and should

probably have gone to that city for the purpose of becoming an eye-witness of its practical efficiency, but that I knew that my excellent friend, Mr. Scott Russell, had already made himself thoroughly master of the subject in his repeated visits to the Prussian capital, and would most willingly contribute every information in furtherance of a plan which he has constantly shown himself ready to promote with the most courteous co-operation, ever since I first communicated it to him in the spring of 1849.

I abstain, then, from giving a translation of the Prussian regulations, and from similar motives I omit to relate the information I have obtained concerning the *Conservatoire des Arts et Métiers*, and the no less interesting industrial schools established at Chalons, Angers, and Aix, begging to refer to the valuable pamphlet published by Lieut.-col. Lloyd.

The form which I have adopted in arranging my remarks is that which seemed most likely to render them convenient to those who might be desirous of giving a full consideration to the subject of a National College of Trades, and more particularly to any Committee which might be appointed for advising on that important desideratum. I have given *seriatim* most of the topics which it would be desirable to discuss, adding a few observations in a merely suggestive form, and less with the object of advancing my own views than with the hope of eliciting valuable opinions from others. My suggestions are based on the principles and preliminaries contained in my letter of the 21st of August, given above. They chiefly relate to the organisation of the Central Industrial

College, which, I assume, might, allowing free scope for progressive enlargements, be made to accommodate at the first about 300 students, representing in duly apportioned numbers a considerable variety of Trades, Artistical, Chemical, and Mechanical. They would enter as good workmen, being required to give previous proof of such abilities as can be derived from an ordinary apprenticeship ; they would be instructed, collectively, in general information, and, by groups, in special knowledge ; they would be trained to work with head as well as hand, and to appreciate and apply the advantages of science and the graces of art, and they would leave the College fully qualified to become, some masters in trade, others foremen or first-rate workmen, whilst others again, carefully selected and instructed for the purpose, would become teachers in their turn, and diffuse throughout the country the advantages of Industrial Education.

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College which I assume might allow the scope  
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 special knowledge, they would be trained to work  
 with hand as well as with mind, and to appreciate and  
 apply the advantages of science and the gifts of art  
 and they would leave the College fully qualified to  
 become some master in trade, others farmers or  
 first-rate workmen, while others again, especially  
 selected and nurtured for the purpose, would become  
 teachers in their own and other throughout the  
 country the advantage of industrial education.

## REVIEW

OF MATTERS TO BE CONSIDERED IN REFERENCE TO THE PROPOSED

### COLLEGE OF TRADES.

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SUBJECTS.

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SUGGESTIONS.

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NAME.

The College of Trades.

PATRONAGE.

ADMINISTRATION.

A system of honest, unbiassed nominations, founded on a careful and conscientious investigation of merits, seems to have almost been given up as an utopian dream in the government of nations; but it may be attainable in the less intricate management of a College, provided the nominating, as well as the governing power, be as much as possible concentrated in the tangible responsibility of a single individual.

I would then propose,—

A Rector, in whom would be vested the chief authority and responsibility, including the appointment of Professors, and of the whole subordinate staff. A Sub-Rector, who might be chaplain to the College. A Council, rather consultative than administrative, consisting of twelve Members, including the Professors. A board of Visitors.

EDUCATIONAL  
SYSTEM.

Valuable hints may be borrowed from the French Industrial Institutions, of which so good an account is given in Lieut.-Col. Lloyd's pamphlet. The Prussian Official publication, entitled "Verordnungen über die Organisation des Gewerbeschulwesens in Preussen," will be, perhaps, a still more convenient guide, but its comprehensive and aspiring educational programme must be imitated with economy in more than one sense. Industrial education should be strictly practical in all its bearings, and in perfect accordance with the various prospects in life, as well as the peculiar technical calling of those on whom it is bestowed.

MORAL  
INSTRUCTION.

In order to secure due attention to the moral training of the Students, it might be well that the Sub-Rector should be a clergyman, and fulfil the duties of chaplain to the College. Of course, in an institution of this kind, it would be necessary to avoid enforcing any compulsory attendance at the daily prayers on the part of those young men who might object on conscientious motives; though all might, perhaps, be required to attend Divine Service every Sunday, either at the College Chapel, or at some other place of worship conformable to their acknowledged persuasion.

INTELLECTUAL  
INSTRUCTION.

It will be desirable, but merely as an accessory to the technical instruction adverted to in the following paragraphs, to instil into the minds of the Students such an amount of taste for intellectual acquirements and occupations as may be suitable to their future station in life, and as may tend to guard them from the attractions of less humanising means of recreation. This would be accomplished by what would be termed classical instruction, of which the furtherance, in the form of lectures might, perhaps, be intrusted to the Rector of the College, if a peculiarly favourable combination of qualifications should present itself in the person holding that appointment; but, generally speaking, I conceive that it would be preferable to keep all professional duties detached from the arduous and important functions of that office, thus disencumbering and isolating it, as it were, in order to ensure a more distinct responsibility and greater freedom of control.



TECHNICAL  
INSTRUCTION,  
comprising  
(a) Scientific  
knowledge of  
a general na-  
ture to be  
taught by  
Lectures.

The selection of departments to which lecturing professors are to be appointed, whether resident or non-resident, will depend on the resources of the Institute; the selection of Trades, with which a beginning is to be made; and many other considerations which must be previously agreed on.\* I shall, therefore, only venture to add a few remarks, not on the matters to be selected, but on the men.

It is a well-known fact, that scientific eminence does not imply ability for lecturing, particularly if we require a lecturer capable of rendering instruction easy and interesting to beginners. It is difficult for a *savant*, who through the toil of many years has arrived at a familiar acquaintance with the most recondite depths of science, to resume, in thought, the unfledged mind with which he began his career; to associate with the inexperience of his hearers, and see the difficulties which they see.

There are brilliant exceptions to this rule, but, generally speaking, the Professors most likely to further the purposes of the College are young men of incipient fame, and moderate pecuniary pretensions, less remarkable for depth of learning than for felicity of manner in communicating knowledge; for judgment in selecting what may be most conducive to the future advantage of their pupils, and for tact and good-nature in adapting it to their present capacities.

\* With a view to facilitate the selection of Trades, and a conformable selection of departments of study, I am preparing a Tabular Synopsis, in which a variety of handicrafts will be exhibited in their several points of relationship to the proposed College.

I am induced to lay the more stress on these considerations, because, by appointing men able enough, and humble enough, to teach well from books written by others, it may become practicable to secure a competent staff of *resident* Professors, and consequently to have a wider range in the selection of a site.

(b) Scientific knowledge of a special nature to be taught in classes.

Including such branches of technical knowledge as need not be expounded to all the students, but to which the attention of those specially concerned must be more stringently directed. For this purpose, lectures *ex cathedra* would be less appropriate than class tuition, of which the more conversational and catechising form affords the means of enforcing attention, of probing capacities, and of observing and clearing up the confused notions which untutored minds frequently derive from a first explanation.

(c) Technical manipulation, applications of Chemistry, &c.

To be learned by Laboratory practice.

(d) Manual ability.

To be acquired by Workshop practice, combining the best and newest applications of science.

(e) Theory of taste in reference to ornamental design.

By theory of taste is here meant such a knowledge of the natural and conventional rules concerning the beautiful or appropriate in form, colour, &c., as would enable a master manufacturer, or foreman, to judge and direct competently, with regard to articles involving artistical excellence.

(f) Practical ability in ornamental design.

APPOINTMENT OF PROFESSORS AND MASTERS.

(See paragraph on Administration, page 13.)

SALARIES AND FEES.

This is a subject involving considerations of paramount importance.

If I were preparing a plan of Industrial Education to be promulgated by ministerial decree in some Continental country, I should, as a matter of course, make the whole a Government affair, fix competent salaries for the *corpus docens*, and provide for educating all the matriculated students free of expense; and indeed I had been, during a long sojourn in various parts of the Continent, so accustomed to that system, that it naturally infused itself at first into my plan. I have since studied the very peculiar manner in which things are managed in this country; but, although I have of late been initiated by experienced friends in many of the characteristic habits, notions, and exigencies of the working classes, yet I feel myself incompetent to attempt the solution of the following questions:—

In what proportion should the emoluments of the Educational Staff of the College consist of fixed salaries, and in what proportion should they be derived from fees paid by the students, and consequently dependent on individual popularity?

To what degree should the independent feeling with which the English workman enjoys that which

he pays for, and despises the gratuitous boon, be turned to account, by making the students defray a part of their maintenance?

Could the workshop practice of the students be made profitable to the establishment?

Assuming three hundred to be the number of resident students for which the arrangements of the College would be made at the first, what number of scholarships would it be desirable to establish, and should they imply a total exemption from all charges and fees?

To what amount can it be reckoned that the privilege of presentation to scholarships, may be an inducement to individuals, institutions, corporate companies, artisans' clubs, &c., to become donors or annual subscribers to the funds of the College?

In case the College should be established within the metropolis, is it probable that many London artisans could advantageously, and would regularly, avail themselves of its advantages by attending as daily or occasional students? (*See* paragraph on the Advantages of a Metropolitan Site, page 23.)

DURATION OF  
STUDIES.

On this, as well as on several other points, it will be necessary to determine, not what may be best absolutely, or ultimately, but what may be best relatively to the amount of resources available at the outset. It is probable that it will at first be found necessary to spread out rather thinly means scarcely adequate to the vastness of the contemplated sphere of action, and that, under such circumstances, a greater aggregate amount of good may be effected

by giving tolerably good instruction to many, than by giving very complete instruction to a lesser number. In pursuance of this principle, it will be advisable to curtail the stay of the students at the College, diminishing as much as possible the number of terms which they will be required to go through, in order to obtain their degrees; and, moreover, it will be expedient carefully to apportion the number of terms to the exigencies of each particular trade, for it is evident that some trades can be satisfactorily dealt with in a much shorter space of time than others.

VACATIONS.

Long vacations bear a very questionable character, even in college education of the usual kind, and it is evident that they would be prejudicial in an establishment of the nature of the one contemplated, of which the inmates would, for the most part, have neither friends at hand nor money to spare, unless arrangements could be made to occupy the young men at workshop practice, and other exercises, during either the whole, or a considerable part of the time for which they are usually set free. The vacation, as an interval of relaxation from mental exertion, would be the most favourable time for the improvement and display of manual dexterity, in preparing specimens and models for competition at the next examinations. The best of these might be afterwards forwarded, as occasion required, to provincial schools, as is practised in Prussia.

EXAMINA-  
TIONS PRE-  
VIOUS TO  
ADMITTANCE.

In conformity with the principle of strict economy, which it will be necessary to observe at first in dis-

pensing the benefits of the Institute, it will be well to fix the preliminary examinations at rather a higher standard, and the ultimate examinations at rather a lower standard, than would otherwise be appointed; thus leaving a somewhat diminished interval to be filled up, if I may use the expression, out of the substance of the College, and allowing of a proportionate reduction in the duration of studies allotted to their several trades.

EXAMINA-  
TIONS FOR  
TAKING DE-  
GREES.

It is a matter of critical importance for the real value of the proposed Institute to the country, that these examinations be carefully organised on strictly utilitarian principles, in the best sense of the expression, and carried on with conscientious judgment and discretion. I particularly hope that those who may be intrusted with the care of selecting the academical tests, and determining the standard of requirements, may not, as is often the case, allow themselves to be run away with by their own knowledge, and their love of it. Indeed, the greatest fault, in my opinion, that is to be found with the regulations of the *Gewerbe Institut* at Berlin, is, that they shoot beyond the mark, by urging on branches of learning which have too indirect a bearing on the usefulness of a working man, or with which a more limited acquaintance would suffice, and by requiring, in the artisan, an amount and variety of theoretical knowledge which may certainly be a desirable accompaniment to technical ability, but extend beyond the rational bounds of a *sine quâ non*.

## DIPLOMAS.

Their form will be suggested by their purpose. They must certify with an honesty of expression entitled to every confidence, and stamped by the highest and most competent authority, that the individual named is qualified by his attainments to take a certain standing in a certain trade, or to become a teacher in an industrial school. It remains a question whether testimonials relative to morality, industry, intelligence, &c., should be united with those for technical ability, or given separately.

## PRIZES.

SELECTION OF  
TRADES, AP-  
PORTIONMENT  
OF SCHOLAR-  
SHIPS, ETC.

(See Note to paragraph on Technical Instruction, page 16.)

SELECTION OF  
A SITE.

The question whether a metropolitan, or a suburban site, is to be preferred, is one of the most important and most difficult of those which are to be considered, and it must be settled *in limine*, as many others will depend on the decision. Under metropolitan site, is to be understood such a one as the space formerly occupied by the Fleet Prison, or Farringdon Market, or the vacant ground between the present terminus of the South Western Railway and York Road. By a suburban site is meant such a one as the expanse of level open ground, in the neighbourhood of the railway

terminus at North Woolwich. My own impressions were at first decidedly in favour of a metropolitan site, but they have been considerably modified by the reasons adduced by my friends in favour of a suburban establishment; and I shall at present content myself with enumerating concisely and impartially a few of the arguments on either side.

ADVANTAGES  
OF A METRO-  
POLITAN SITE.

Conjunction or easy communication with the Museum of Industry. It is obvious that the latter ought to be in town, and if the College were suburban, many duplicates would be required.

Though it cannot, perhaps, be expected that much advantage could be derived from the lectures or classes at the College by London artisans in general, whose exigencies would rather be met by the system of preparatory schools, proposed in a subsequent paragraph; yet there are many foremen and masters in trade who would find valuable opportunities for completing their stock of technical knowledge, and keeping it up to the level of the times.

It has been suggested to me that the chief Lecture Hall might be made available for the improvement of the working-classes by means of gratuitous lectures on a grand scale, delivered periodically or occasionally by eminent professors.

Proximity to the Schools of Design, the Society of Arts, the Geological Museum, and its School of Mines, and other sources of artistical, scientific, and technical instruction.

Comparative proximity to numerous factories, where important and complicated branches of manu-



facture are carried on, on a large scale, and where arrangements might be made for the regular attendance and training of students.

Convenience for professors not included in the resident staff of the College.

ADVANTAGES  
OF A SUBUR-  
BAN SITE.

It would be much easier to enforce a regular system of discipline and moral training, and to promote, by appropriate exercises, the bodily health of the students.

Free space could be obtained, at a comparatively moderate expense, not only for establishing on a suitable scale a variety of workshops and out-buildings, but for future development commensurate with the growing resources of the Institute, and the exigencies of the country.

Grounds for gymnastic exercises, including cricket, &c. might be comprised in the precincts of the College, with, perhaps, even small horticultural allotments.

I have not yet had an opportunity of examining closely the site at North Woolwich, above alluded to, or of making such inquiries as I should have wished, but the following are among its evident advantages:—

The proximity to the Thames, besides favouring the exercises of swimming and rowing, would materially facilitate several important branches of study.

Valuable assistance might be derived from the Dockyard, Artillery-depôt, and other establishments at Woolwich.

Communications with town would be rendered remarkably cheap, easy, and expeditious, by the river steamers on the one hand, and on the other by the

North Woolwich branch of the Eastern Counties Railway, with its two termini in Fenchurch Street and Shoreditch.

THE BUILD-  
ING.

It must combine every requisite for comfort and convenience in a substantial structure, bold in its dimensions, chaste in its architectural symmetry, and tasteful without pretence.

Some useful hints as to internal arrangements, but not as to external ornament, might be borrowed from the Government Training School at Whitton; some also from the Metropolitan Chambers for Working Men, constructed in Albert Street, Spicer Street, Spitalfields, by the Metropolitan Association for the Improvement of the Dwellings of the Industrious Classes, and concerning which all details would be obligingly furnished by the Secretary to the Association, C. Gatliff, Esq., 19 Coleman Street, City. But, perhaps, the best school for acquiring the art of combining convenience, neatness, and durability, with a strict regard to economy, and of turning to full account the resources of modern science and ingenuity, is to be found in the buildings constructed for the Labourers' Friend Society under the direction of their honorary architect, H. Roberts, Esq., and in the essays, diagrams, and specifications, published by that distinguished philanthropist.

|            |   |    |    |    |            | £ |
|------------|---|----|----|----|------------|---|
| ESTIMATES. | Site (Suburban) 5 to 10 Acres at  |    |    |    | per acre.. |   |
|            | Cost of the Building  | .. | .. | .. | ..         |   |
|            | Fixtures, Fittings, and Furniture   | .. | .. |    |            |   |
|            | Workshop, including Purchase and Fitting-up of<br>a Steam Engine  | .. | .. | .. |            |   |
|            | Library—Standard Authors  | .. | .. | .. |            |   |
|            | Do. Scientific Works  | .. | .. | .. |            |   |
|            | Laboratory Furniture  | .. | .. | .. |            |   |
|            | Workshop Furniture, exclusive of some expen-<br>sive Articles which might be obtained, either<br>from the Museum of Industry, or in the<br>shape of private Donations | .. | .. | .. |            |   |
|            | Total primary outlay  | .. | .. | .. |            |   |

The following are some of the items of Annual Expenditure :—

|                       |             |    |    |    |         | £ |
|-----------------------|-------------|----|----|----|---------|---|
| SALARIES.             | Rector      | .. | .. | .. | ..      |   |
|                       | Sub-Rector  | .. | .. | .. | ..      |   |
|                       | Clerk       | .. | .. | .. | ..      |   |
|                       | Steward     | .. | .. | .. | ..      |   |
|                       | Porter      | .. | .. | .. | ..      |   |
|                       | Housekeeper | .. | .. | .. | ..      |   |
|                       | Other wages | .. | .. | .. | ..      |   |
|                       | Professors  | .. | .. | .. | ..      |   |
|                       | Masters     | .. | .. | .. | ..      |   |
|                       | Sub-Masters | .. | .. | .. | ..      |   |
| Foremen               | ..          | .. | .. | .. |         |   |
| 300 Students, at 50/. |             |    |    |    | £15,000 |   |

About fourteen years ago, when my return to England, after a protracted absence, gave me occasion to observe with curious and comparing attention the position of British artisans, and to consider somewhat more seriously than I had previously done the means of elevating their position, my plan embraced a system of Provincial Colleges of Industry, somewhat resembling that which has since been organised in Prussia, but with less of scientific instruction, and more of technical and manual improvement. Since that time, the fear that so comprehensive a scheme might not find sufficient support, induced me to confine my propositions to the higher Central Institute, leaving to time, to perseverance, and to the gradually awakened perception of before unheeded necessities, to disseminate subordinate affiliations throughout the land. But the Great Exhibition has altered the face of things. People's notions have expanded with the rapidity of a mushroom growth, and the nervous cautiousness which did things piecemeal, and spoiled them, has given place to a just appreciation of the scale on which affairs of national importance must be done; to a consciousness of the advantages of embracing at once all the bearings of a scheme in a single-minded arrangement, and to a sense of the paramount value for institutions of this kind of a centralised administration.

Conceiving, then, that there will be no doubt as to the propriety of organising the local schools, simultaneously with the Central Institute, with respect to which they would be intended to take the place of

training or preparatory schools, I shall only propose the following questions for consideration :—

1stly. Could a certain number of them, established in the chief provincial and manufacturing towns, be, as in Prussia, somewhat similar in kind, though dissimilar in degree, to the Central Institute ; and to what extent could their full development be made reconcileable with the present system of apprenticeships, or could they become by degrees a means of improving that system ?

2dly. Would it be advisable to confine altogether the preparatory establishments to the humble, but convenient, and still decidedly useful form of Evening Schools of Industry, at which apprentices and others might attend, when released from the toils of the day ?

The efficiency of Evening Schools, as tested by actual experiment, and the great advantages they might afford as a means of training youths for the College of Trades, are a subject to which Mr. Scott Russell has devoted some attention, and on which he is, I believe, fully prepared to furnish most satisfactory evidence.

Though fully impressed with the many advantages which would accrue from locating together, or near each other, two establishments so closely allied as the College of Trades and the Industrial Museum, yet I should regret to see that consideration preventing either from selecting freely the peculiar site where it might best develop itself and be prosperous

CONNEXION  
OF THE COL-  
LEGE OF  
TRADES WITH  
THE MUSEUM  
OF INDUSTRY  
AND OTHER  
ESTABLISH-  
MENTS.

and useful. Moreover, I hope to see the above-mentioned establishments, great as would be their intrinsic importance, yet forming but a part of a well-combined system of technical education, embracing with that comprehensiveness of views and perfect harmony of action which have so admirably characterised the proceedings of 1851, every institution that might contribute to develop the manufacturing and commercial prosperity of the country, by raising the efficiency of those on whom that prosperity mainly depends. In that system, strict impartiality and judicious foresight would assign to each existing or contemplated establishment its proper place.

The Museum of Economic Botany, attached to the Botanic Gardens at Kew, is in satisfactory progress.

The Museum of Economic Geology includes already in its attributes a complete School of Mines.\*

If the walls of the National Gallery were dismantled of their pictures, which every one wishes to see transferred to a less smoky atmosphere, the building might be enlarged, by additions for which peculiar facilities present themselves; and whilst one portion would be allotted to the Royal Academy, with its school of Fine Arts, the other portion, including

\* Although this School has only been established for a few months, there are already sixty students enrolled for the lectures, of whom thirteen or fourteen have entered for two years. The applications for entrance into the laboratory have been so numerous, that since its opening, although the accommodation has been considerably increased, many pupils have been declined from the impossibility of finding places for them.

the barracks, might accommodate the expanding dimensions of the Society of Arts, together with the proposed Museum of Industry, of which the management would so naturally devolve on that Society, and space would be afforded for Annual Exhibitions of the nature of those now cramped within the walls of the house in John Street, Adelphi.

Such arrangements as these, or any other assistance which might be given to the Society of Arts, for the purpose of enabling it to carry out the comprehensive plans of usefulness which it is now preparing, and to assume its proper standing among the institutions of the country, as the recognised medium through which the benefits of art and science are transmitted to the manufacturing and commercial community, would be hailed by the public as a gracious and well-timed acknowledgment of the active part which the Society has taken from the beginning in promoting the Great Exhibition of 1851.

In accordance with these adaptations of existing establishments, I hope to see arise the new elements of industrial organisation imperatively claimed by that manufacturing pre-eminence which we would fain perpetuate; and first in importance, and with name and proportions by which we may at once recognise the offspring of the Great Exhibition—THE ALBERTINE COLLEGE OF TRADES.

THE WORK-  
ING MAN'S  
MUSEUM.

A connexion of several years with the Society for Improving the Condition of the Labouring Classes, has enabled me to appreciate the desirableness of a public collection of specimens, models, and diagrams,

comprising every successful attempt to promote the comforts of the poor in their dwellings and household economy, their clothing, food, occupations, &c. A comparatively small amount of assistance would enable the Society, supported as it always is on such occasions by liberal private donations, to create an institution worthy of the success which has hitherto crowned its proceedings.

This would be the Working Man's Museum, of which the mention here will, I trust, not be deemed incongruous. The Prince who erected the model dwellings for families near the Crystal Palace, appreciated well that commendable feature in our national character which prompts us to delight in the alliance of charity with knowledge, and to sanctify that which is great by that which is benevolent.



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